



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,572	09/15/2003	Susumu Maekawa	392.1816	7965
21171	7590	12/22/2004	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			WALLING, MEAGAN S	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

12

Office Action Summary	Application No. 10/661,572	Applicant(s) MAEKAWA ET AL.	
	Examiner Meagan S Walling	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 15 September 2003.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) 4-6, 7/4, 8/4, 9/4, 10/4, 11/4, 12/4, 14/4, and 14/4 is/are allowed.

6) ☒ Claim(s) 1 is/are rejected.

7) ☒ Claim(s) 2, 3, 7/1, 8/1, 9/1, 10/1, 11/1, 12/1, 13/1, and 14/1 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>09152993, 02172004</u> .	6) <input type="checkbox"/> Other: _____

U.S. Patent and Trademark Office
PTOL-326 (Rev. 1-04)

Office Action Summary

Part of Paper No./Mail Date 20041016

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Tadokoro et al. (US 6,463,352).

Regarding claim 1, Tadokoro et al. teaches cutting load detecting means for detecting a cutting load (column 16, lines 51-52); means for obtaining at least one of three cutting load data by the cutting load detecting means, including a cutting time (column 16, line 64), an area of a cutting load waveform during cutting, and a maximum absolute value of a slope of a drop in a cutting load during the cutting, in a machining cycle, as a load state value in a current machining cycle; means for updating and obtaining a moving variable threshold based on the load state value calculated in a machining cycle before the current machining cycle (column 29, lines 16 and 18-19); and means for comparing the load state value in the current machining cycle with the moving variable threshold to determine an abnormal condition of the tool (column 22, lines 23-27).

Allowable Subject Matter

2. Claims 2, 3, 7/1, 8/1, 9/1, 10/1, 11/1, 12/1, 13/1, and 14/1 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of allowability of claim 2 is the inclusion of the limitation that the machining cycle before the current cycle is the machining cycle immediately before or a plurality of cycles before the current machining cycle. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 3 is the inclusion of the limitation that moving variable threshold is obtained based on an average value of load state values of respective machining cycles and calculated in all machining cycles from a first machining cycle to a machining cycle immediately before the current machining cycle or in a plurality of machining cycles before the current machining cycle. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 7/1 is the inclusion of the limitation that the moving variable threshold is obtained by multiplying the obtained load state value by a predetermined coefficient. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

Art Unit: 2863

The primary reason for the indication of allowability of claim 8/1 is the inclusion of the limitation that the moving variable threshold is obtained by adding a predetermined value to the obtained load state value. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 9/1 is the inclusion of the limitation of means for providing an instruction to activate an audible alarm and/or a warning light or means for providing an instruction to replace the tool or to stop operation of the machine when the means for determining an abnormal condition of the tool determines that the tool is in an abnormal condition. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 10/1 is the inclusion of the limitation that the means for determining an abnormal condition of the tool determines that the tool is in an abnormal condition when the load state value in the current machining cycle exceeds the moving variable threshold. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 11/1 is the inclusion of the limitation that the means for determining an abnormal condition of the tool determines that the tool is in an abnormal condition when the load state value in the current machining cycle becomes smaller than the moving variable threshold. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

Art Unit: 2863

The primary reason for the indication of allowability of claim 12/1 is the inclusion of the limitation that the means for determining an abnormal condition of the tool obtains a first moving variable threshold and a second moving variable threshold smaller than the first moving variable threshold for the area of the cutting load waveform and the maximum absolute value of the slope of the drop in the cutting load and determines that the tool is in an abnormal condition when the load state value in the current machining cycle exceeds the first moving variable threshold or when the load state value in the current machining cycle becomes smaller than the second moving variable threshold. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 13/1 is the inclusion of the limitation that the cutting load detecting means detects a load of a feed shaft or a main shaft to which the cutting load is applied. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 14/1 is the inclusion of the limitation that the cutting load detecting means detects the load by an observer for estimating an applied load or by a driving current of a motor for driving a feed shaft or a motor for driving a main shaft to which the cutting load is applied. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

3. Claims 4-6, 7/4, 8/4, 9/4, 10/4, 11/4, 12/4, 14/4, and 14/4 are allowed.

The following is an examiner's statement of reasons for allowance:

Art Unit: 2863

The primary reason for the allowance of claim 4 is the inclusion of the limitation of means for updating and obtaining a moving variable threshold based on the load state value calculated in a machining cycle for a preceding workpiece at the machining position which corresponds to the machining position in the current machining cycle. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

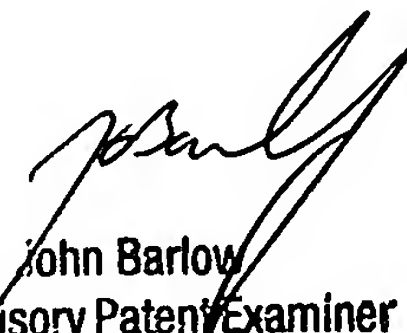
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan S Walling whose telephone number is (571) 272-2283. The examiner can normally be reached on Monday through Friday 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2863

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

msw



John Barlow
Supervisory Patent Examiner
Technology Center 2800